

CLAIMS

1. Device for positioning a total knee prosthesis comprising:
a tensioning component (1) having:
 - a plate (2) which is capable of being supported on a tibial cutting surface,
 - a slide (5) which is capable of being displaced on a sliding means (3) in a direction substantially perpendicular relative to the plate (2) and which has means (6, 11) for being temporarily fixedly joined to an ancillary component (20) which comprises a centro-medullary rod and a tibial plate and which is capable of receiving adjusting means of variable thicknesses, positioned beforehand at the end of the femur when the knee is in a state of flexion at approximately 90° allowing spacing in an extended state of the articulation to be obtained,
 - and a motor means (8, 10) which allows the surgeon to displace the slide (5) and tension the knee when the plate is pressed on the tibial cut and the ancillary component (20) which is fixedly joined to the slide,
 - a drilling guide (30) which is capable of being mounted on the sliding means (3) and which has drilled holes (37) which allow the subsequent positioning on the femur of a cutting block which allows the posterior femoral cuts to be brought about,
 - the guide (30) being able to comprise or be associated with a means for palpating the anterior portion of the femur in order to position the guide in alignment with this anterior portion,
 - and reference means (EF) which determine the position of the slide (5) and/or the guide (30) relative to the plate (2) of the tensioning component (1) and therefore determine the interarticular space available in a state of flexion,

the device thus allowing either the position of the distal femoral cutting plane to be determined by determining the difference between the spacing in the state of extension and the space in the state of flexion, or, in the case of a distal cut which is carried out immediately, the position of the posterior femoral cutting plane to be determined in order to obtain approximate equality between the spacing in the state of extension and the space in the state of flexion.

2. Device according to claim 1, characterised in that it comprises a size estimation component (40) which is capable of being mounted on the sliding means (3) in order to be able to estimate, using a reference means, the size of the femur and allow the correct drill guide component (30) to be selected.

3. Device according to claim 2, characterised in that the dimension of the plate (2) is such that the femoral end can be received between the plate and the component (40), in the manner of a calliper rule.

4. Device according to any one of claims 1 to 3, characterised in that it comprises a distal cutting guide support (50) which has a member (51) which is capable of sliding on the sliding means (3) and from which an arm (54) extends which will extend parallel with the axis of the knee in a state of flexion, and which has means for receiving and fixing the distal cutting guide at a precise location, the precise location being able to be determined by the calculation of the difference between the space in the state of flexion and the spacing in the state of extension.

5. Device according to any one of claims 1 to 4, characterised in that the tensioning component (1) comprises, extending from the plate (2), sliding means (3), on or in which the slide (5) is capable of sliding, this slide (5) being able to be displaced by means of an assembly comprising a screw (8) and a nut (10) in order to allow the surgeon to slide the slide and place the knee in a state of tension.
6. Device according to claim 5, characterised in that the sliding means (3) have an internal runner in which the slide (5) is guided, and an outer surface which allows the drilling guide (30) and other components of the device to be guided, the slide having a portion which allows the drilling guide to be moved on this device.
7. Device according to any one of claims 1 to 6, characterised in that the drilling guide (30) is constructed so as to receive a palpating arm which is capable of pressing on the anterior surface of the femoral end in order to limit the insertion of the guide on the guiding means in order to optimise the drilling position.
8. Device according to any one of claims 1 to 7, characterised in that the slide (5) has reliefs (11) which allow precise positioning, relative to the slide, of the plate (21) of the ancillary component (20) and a rapid fixing means (6) which allows the plate (21) to be temporarily fixedly joined relative to the slide (5).
9. Device according to any one of claims 1 to 8, characterised in that the size estimation component (40) for palpating the anterior end of the femur is formed in one piece with a member (41) which is capable of sliding on or in

the sliding means (3), this sliding member having a transverse palpating arm (43) which is articulated about a shaft (44) parallel with the sliding axis.